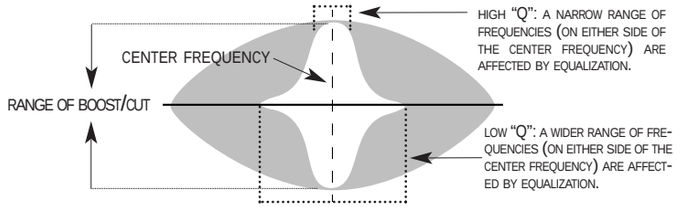
## PARAMETRIC EQUALIZATION


HIGH "Q": A NARROW RANGE OF FREQUENCIES (ON EITHER SIDE OF THE CENTER FREQUENCY) ARE AFFECTED BY EQUALIZATION.
CENTER FREQUENCY
RANGE OF BOOST/CUT
LOW "Q": A WIDER RANGE OF FREQUENCIES (ON EITHER SIDE OF THE CENTER FREQUENCY) ARE AFFECTED BY EQUALIZATION.

The P500 is a 5-band parametric equalizer. Its design allows the user to vary center frequency, select a "Q" of 1-10, and select up to 18 dB of boost or cut.

**CENTER FREQUENCIES** range from 20 Hz to 20 KHz. The on-board frequency jumper divides the frequency range into three bands: 20 Hz to 200 Hz, 200 Hz to 2 KHz, and 2 KHz to 20 KHz. Simply place the jumper in one of the three positions which corresponds with the frequency to be adjusted. The specific frequency is then selected via the "frequency" potentiometer

**"Q"** determines the range of frequencies affected on either side of the center frequency. "Q" is equal to the center frequency divided by the bandwidth. As "Q" goes up, bandwidth decreases. The P500's "Q" adjustment ranges from a narrow bandwidth of 10 to a very broad bandwidth of 1.

**BOOST / CUT** on the P500 is +/–18 dB. The rotary potentiometer provides continuously variable adjustment.

## P500 TUNING SEQUENCE

The P500 is designed to be "set-up" or "tuned" with the aid of a *Real Time Spectrum Analyzer* measuring a pink noise signal generated by the mobile audio system. The analyzer provides visual feedback when following the steps listed below.

RTA the system and determine points of adjustment. Turn the system off and place each of the *frequency range jumpers* into their corresponding "frequency range" positions.

***Perform the following steps per band:***

With the system playing pink noise, turn on the RTA and adjust pink noise SPL to 85 – 90 dB.

Turn the boost/cut control to +18 dB (full clockwise rotation). This will show the present center frequency and "Q" settings on the analyzer.

Rotate frequency control to the frequency you wish to adjust.

Adjust "Q" setting to match the width of the dip or peak you are addressing.

Finally, adjust the gain control to achieve the desired response curve.

## INSTALLER'S REFERENCE LOG

DATE INSTALLED: _____

OWNER'S NAME: _____ PHONE: _____

ADDRESS: _____

CITY/ STATE: _____ ZIP: _____

VEHICLE: _____ YEAR: _____

XTANT P500 SERIAL# _____

### MODES OF OPERATION: (CIRCLE SETTING)

| | | |
|---|---|---|
| INPUT MODE: | 4 CHANNEL | 2 CHANNEL |
| BALANCED LINE: | ENABLE | DISABLE |
| NOISE GATE: | ON | DEFEAT |

### P500 ADJUSTMENTS (DRAW POSITION OF CONTROL & CIRCLE FREQ. RANGE SELECTED)

| FRONT "A" | FRONT "B" | FRONT "C" | REAR "A" | REAR "B" |
|---|---|---|---|---|
| FREQ. | FREQ. | FREQ. | FREQ. | FREQ. |
| Q ADJUST | Q ADJUST | Q ADJUST | Q ADJUST | Q ADJUST |
| +/– 18 dB | +/– 18 dB | +/– 18 dB | +/– 18 dB | +/– 18 dB |
| **FREQ. RANGE** | **FREQ. RANGE** | **FREQ. RANGE** | **FREQ. RANGE** | **FREQ. RANGE** |
| 20 – 200 HZ | 20 – 200 HZ | 20 – 200 HZ | 20 – 200 HZ | 20 – 200 HZ |
| 200 – 2 KHZ | 200 – 2 KHZ | 200 – 2 KHZ | 200 – 2 KHZ | 200 – 2 KHZ |
| 2K – 20 KHZ | 2K – 20 KHZ | 2K – 20 KHZ | 2K – 20 KHZ | 2K – 20 KHZ |

### SYSTEM COMPONENTS

SOURCE _____ SERIAL # _____

PROCESSOR(S) _____ SERIAL # _____

_____ SERIAL # _____

AMPLIFIER(S) _____ SERIAL # _____

_____ SERIAL # _____

_____ SERIAL # _____

xtant technologies
7676 SOUTH 46TH STREET PHOENIX, ARIZONA 85040 USA
602 431 8686

# xtant technologies

# INSTALLER'S REFERENCE

THIS DOCUMENT HAS BEEN CRAFTED TO MAKE INSTALLATION, SYSTEM DESIGN AND TROUBLE-SHOOTING, A QUICK AND EASY PROCESS. THE CHARTS PROVIDED, OFFER A SIMPLE METHOD OF DOCUMENTATION.

**IT IS IMPORTANT THAT YOU RETAIN THIS LOG FOR YOUR RECORDS.** ON PAGE 8 OF THE OWNER'S MANUAL, YOU WILL FIND THE OWNER'S REFERENCE LOG. ONCE YOU HAVE NOTATED THE FINAL SETTINGS FOR THIS P500, TRANSFER THOSE SETTINGS TO THE OWNER'S REFERENCE LOG. IN THE FUTURE, ANY SYSTEM EXPANSION AND / OR PROBLEMS MAY BE REFERENCED TO THIS LOG.

## INSTALLATION SEQUENCE

**REMOVE P500 COVER:**
Loosen allen head screws and lift-off cover. Do not remove protective covering on stainless steel lid until installation is complete.

**TEMPORARILY MOUNT P500:**
The P500 is designed to be anchored through the four (4) holes located on the circuit board/base assembly.

**MARK WIRES FOR TERMINATION AND REMOVE P500:**
Determine wire lengths for Power, Ground & Remote and mark for cutting/termination. Remove P500 before cutting and terminating all wires. **CAUTION:** stripping wires over the circuit board may cause product failure.

**INPUT SENSITIVITY:**
Make initial adjustment to input gain at your work bench. Refer to the section "Input Sensitivity" on the reverse side.

**BALANCED LINE:**
Make initial adjustment at your work bench. Refer to the section "Balanced Line" on the reverse side

**MOUNT THE P500 AND MAKE ALL CONNECTIONS:**
Re-install the P500 and make all wire connections. i.e. Power, Ground, Remote and RCA input/outputs.

**DOUBLE CHECK ALL CONNECTIONS! TURN ON P500:**
Check red LED, it should be on.

**MAKE ALL EQUALIZATION ADJUSTMENTS:**
Refer to "P500 Tuning Sequence" in this "Reference"

**ADJUST NOISE GATE THRESHOLD (IF USED):**
Refer to "Activating the Noise Gate" on the reverse side

**AFTER FINE TUNING THE SYSTEM:**
Remove protective covering from P500 and clean. Attach cover to base.

# INSTALLER'S REFERENCE

## XTANT P500

**2CH / 4CH INPUT MODE JUMPER:** THE POSITION OF THE INPUT MODE JUMPER DETERMINES THE OPERATIONAL MODE OF THE EQUALIZER. IN THE 2CH MODE, ONLY THE FRONT INPUTS AND REAR OUTPUTS ARE USED AND ALL 5 BANDS OF EQUALIZATION ARE AVAILABLE FOR USE. IN THE 4CH MODE, BOTH THE FRONT AND REAR INPUTS/OUTPUTS ARE OPERATIONAL AND THE 3 EQ BANDS LABELED "FRONT A, B &C" ARE TIED TO THE FRONT INPUTS/OUTPUTS AND THE 2 EQ BANDS LABELED "REAR A & B" ARE TIED TO THE REAR INPUTS/OUTPUTS.

**INPUT SENSITIVITY:** FRONT AND REAR INPUT SENSITIVITY IS DESIGNED TO BE SET INDEPENDENTLY. TO ADJUST INPUT GAIN, PLACE THE JUMPER IN THE POSITION WHICH ALLOWS MAXIMUM GAIN BEFORE CLIPPING (DISTORTING). IN THE 2 CHANNEL MODE, ONLY THE FRONT INPUTS (MAY) REQUIRE ADJUSTMENT.

PLEASE REFER TO THE CHART BELOW WHEN SETTING INPUT SENSITIVITY. THESE SETTINGS ARE DESIGNED TO BE A STARTING POINT OR REFERENCE. IF MORE INPUT GAIN IS DESIRED, MOVE THE JUMPER TO A HIGHER "+" SETTING. TO ACHIEVE LOWER GAIN, MOVE THE JUMPER TO ONE OF THE "–" POSITIONS. THE P500 IS SHIPPED WITH THE F/R INPUT SENSITIVITY SET AT +10 dB.

| | | |
|---|---|---|
| +20 dB | = | 100 – 300 mV |
| +10 dB | = | 300mV – 1V |
| 0 dB | = | 1V – 3V |
| –10 dB | = | 3V – 8V |
| –20 dB | = | 10V – 17V |

**BALANCED LINE:** XTANT'S BALANCED LINE TECHNOLOGY MAY BE USED TO ELIMINATE INDUCED AND/OR GROUND-LOOP RELATED NOISE, RECEIVE SIGNAL FROM A BALANCED SOURCE, INTERFACE WITH A HIGH LEVEL SIGNAL (SPEAKER OUTPUTS) AND/OR BE USED AS AN OEM SOURCE UNIT INTERFACE.

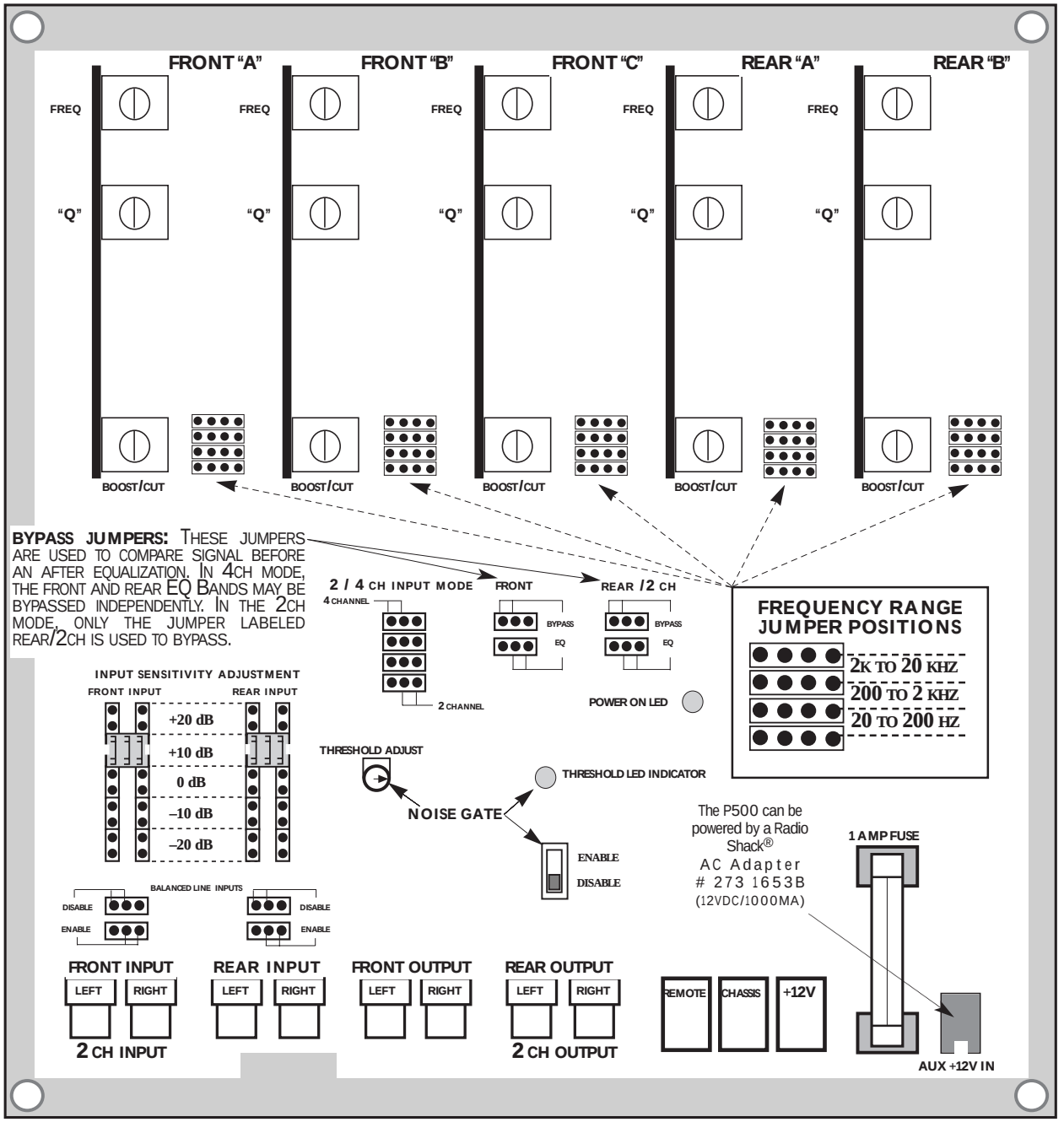
EACH SET OF INPUTS (FRONT/REAR) OF THE P500 FEATURE BALANCED LINE CIRCUITRY. TO ACTIVATE THIS CIRCUITRY, SIMPLY MOVE THE BALANCED LINE JUMPER TO THE "ENGAGE" POSITION.

TO USE BALANCED LINE IN THE 2 CHANNEL MODE, ONLY "ENGAGE" THE FRONT INPUTS.

THE OUTPUTS OF THE P500 ARE NOT BALANCED. GENERALLY, THE BENEFITS DERIVED FROM BALANCED INPUTS ARE AVAILABLE AT THE OUTPUTS.

**FREQUENCY RANGE JUMPER:** EACH BAND OF EQUALIZATION HAS A FREQUENCY RANGE JUMPER WHICH DETERMINES THE RANGE OF CENTER FREQUENCIES AVAILABLE FOR ADJUSTMENT. THREE RANGES ARE AVAILABLE: 20 TO 200 HZ, 200 TO 2,000 HZ AND 2,000 TO 20,000 HZ.

TO SELECT A RANGE, SIMPLY PLACE THE JUMPER IN THE CORRESPONDING POSITION AS DETAILED IN THE ILLUSTRATION. ONCE IN PLACE, THE FREQUENCY ADJUSTMENT POTENTIOMETER ALLOWS YOU TO SELECT ANY FREQUENCY WITHIN THAT RANGE.




**SETTING THE**

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ROTATION DECREASES
THE USE OF AN RTA,
ENCE – KEEP IN MIND
ATED VALUES PICTU
STRONGLY SUGGESTS

**CENTER FREQUENC**

2 3

FREQUENCY VALUE IS A
1000 DEPENDING UPON
= X 10, FREQ JUMPER

**"Q"**

1 1.1 1.6

FULL COUNTER CLOCKWI
ROTATION PRODUCES A "

**BOOST/CUT**

-18dB -10dB -6dB

Full counter clockwi
clockwise rotation p

**ACTIVATING T**

GATE IS DESIGNED T
TRACKS ON CD'S. IT IS
LOCATED BEHIND THE
MOVE THE SWITCH TO
THE SWITCH IN THE DI

**NOISE GATE**

INCREASES SENSITIVIT
TERCLOCKWISE ROTATI
MORE INPUT SIGNAL.
CLOSE AT A SLOWER R

**NOISE GATE T**

OPEN AND CLOSE VIA
IS PROVIDED TO INDICA
(PASSING SIGNAL) TH
PASSING SIGNAL), TH

SELECT A CD AND
IMUM LISTENING LEVE
PLAYING, TURN THE
GATE "CLOSES". AT
GROUND HISS". IF THE
LEVEL MUSIC INFORMA
PROPER THRESHOLD S